

## Simulation Approach to Mission Risk and Reliability Analysis, Phase I



Completed Technology Project (2005 - 2005)

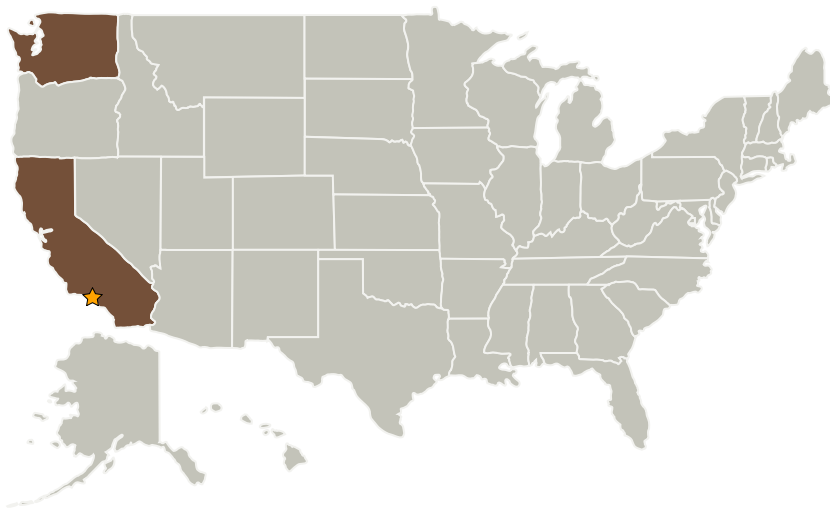
## Project Introduction

It is proposed to develop and demonstrate an integrated total-system risk and reliability analysis approach that is based on dynamic, probabilistic simulation. This will be achieved by adapting a methodology and software that were originally developed for long-term safety analyses of nuclear waste disposal, and that are currently used by the U.S. Department of Energy and the Nuclear Regulatory Commission among others. The approach will provide a valuable new systems analysis capability to complement current NASA approaches, and will address many of the goals of the X8.01 Technology-Systems Analysis and Infrastructure Modeling research topic. In particular it will be useful for impact studies, risk/cost/benefit analyses, risk/uncertainty analyses, model integration, and Model-Based Design/Model-Based Engineering.

## Anticipated Benefits

The same applications are relevant for the following organizations: - U.S. Commercial aerospace businesses. - U.S. Department of Defense and DOD contractors - International organizations with similar roles. - Manufacturers of complex equipment systems for use in non-aerospace fields.

## Primary U.S. Work Locations and Key Partners



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## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
GoldSim Technology Group LLC	Supporting Organization	Industry	Issaquah, Washington

## Primary U.S. Work Locations

California	Washington
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## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

**Project Manager:**

Celestino Jun Rosca

**Principal Investigator:**

Ian T Milray

## Technology Areas

**Primary:**

- TX11 Software, Modeling, Simulation, and Information Processing
  - └ TX11.5 Mission Architecture, Systems Analysis and Concept Development
    - └ TX11.5.2 Tools and Methodologies for Performing Systems Analysis